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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,910	01/15/2002	Hiroshi Okabe	XA-9611	4961

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EXAMINER

DINH, TUAN T

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/044,910	OKABE ET AL.	
	Examiner	Art Unit	
	Tuan T Dinh	2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 03/19/03 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Claim Objections

1. Claims 6, 8-9 are objected to because of the following informalities:

Claim 6, line 4, change "including" to --consisting of--.

Claim 8, line 8, change "including" to --consisting of--.

Claim 9, line 7, change "including" to --consisting of--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 11-12, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Sunahara (U. S. Patent 6,153,290).

Regarding claim 11, Sunahara discloses a multilayer circuit board as shown in figures 1-4 comprising:

a first dielectric circuit board layer (8-figure 1, column 5, line 31);

a first electrically conductive layer (14, column 5, lines 35-36) supported on said first dielectric layer;

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an electrode layer (23, column 5, line 56) supported on said first electrically conductive layer, said electrode layer being a metal and having a composition different from that of said first electrically conductive layer (column 5, lines 4-7, and column 6, lines 19-25);

an epitaxial dielectric layer (3-7, column 5, line 31) supported on said electrode layer (23);

a metallic connection layer (17, column 5, lines 35-36) overlying said epitaxial dielectric layer and in contact therewith;

a second electrically conductive layer (12) overlying and in contact with said metallic connection layer; and

a second circuit board dielectric layer (2) covering said second electrically conductive layer.

Regarding claim 12, Sunahara discloses the circuit board as shown in figures 1-4 wherein said metal of said electrode layer is made one of Pd and Pt (column 6, lines 20-25).

Regarding claim 14, Sunahara discloses the circuit board as shown in figures 1-4 wherein said metallic connection layer is selected from being a metal selected from a group including Cr, Mo, and Ti (column 11, lines 10-24).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, and 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lauffer et al. (submitted by applicant) in view of Sunahara (U. S. Patent 6,153,290).

As to claim 1, Lauffer discloses an electronic-circuit equipment using a multilayer circuit board (101, column 11, line 25) on which a semiconductor chip (235, column 11, line 27) is mounted, as shown in figures 1-3 comprising:

a thin film capacitor (141, column 11, line 32)) provided on said multilayer circuit board (101), wherein a first electrode (125, column 11, lines 37-38) of said thin film capacitor (141) and a first wiring (121, column 11, line 30) of said multilayer circuit board (101) are electrically connected to each other, a second electrode (135, column 11, line 40) of said thin film capacitor and a second wiring (131, column 1, line 31) of said multilayer circuit board being electrically connected to each other, and a thin film dielectric (151, column 11, lines 42-43) of said thin film capacitor is formed by being grown epitaxially with said first electrode as its base.

Lauffer does disclose the first wiring formed of a metal different from a metal of the first electrode.

Sunahara shows a multilayer ceramic substrate in figures 1-4 comprising: an internal wiring conductor (14, column 5, lines 34-35) made of a metal (column 5, lines 4-7) different from a metal (column 6, lines 20-25) of an electrode (22, 23, column 6, line 20) of a capacitor (10, column 5, line 32).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a metal of an electrode of a capacitor different from a metal of a wiring conductor as taught by Sunahara to employ the electronic circuit equipment in order to provide a specific function of conductivity of the capacitor when built into the multilayer substrate.

As to claim 2, Lauffer discloses said multilayer circuit board includes a resin and a conductor (column 1, lines 14-17), said thin film capacitor (141) is buried in said resin (see figures 2-3), and at least one of electrical connections between said wirings and said electrodes is established via a hole (321a, 321b) bored in said resin.

As to claim 3, Lauffer discloses said first electrode and said first wiring are formed of materials different from each other, and have the same pattern, and are laminated (see figures 1-3, column 10, lines 11-14, and column 11, lines 8-24).

As to claim 5, Lauffer discloses said electrodes (125, 135) are insulated from each other with a material that is the same as a material of said thin film dielectric (151).

As to claim 8, Lauffer discloses said first electrode (125) has a first connection layer positioned on a plane of said first electrode opposite to said thin film dielectric and formed of a metal different from a conductor of said first electrode, said first connection

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layer being a metal selected from a group including Cr, Mo, and Ti (column 11, lines 10-24).

As to claim 9, Lauffer discloses said second electrode (135) has a second connection layer positioned on a plane facing said thin film dielectric and formed of a metal different from a conductor of said second electrode, said second connection layer.

As to claim 10, Lauffer discloses said first or second electrodes that are positioned nearer to a conductor of a transmission line formed on said multilayer circuit board is set at a grounding potential (column 12, lines 7-10).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6-7, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sunahara (290) or Lauffer ('253) in view of Summerfelt et al. (U. S. Patent 6,319,542).

Sunahara or Lauffer does not disclose said first electrode is a metal selected from a group including Ru, Pt, and Pd and said thin film dielectric is formed of strontium titanate.

Summerfelt shows construction capacitor having an electrode being a metal selected from a group including Ru, Pt, and Pd (column 2, lines 3-15) and a thin film dielectric is formed of strontium titanate (column 5, see table).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have an electrode made of either Ru, Pt, and Pd and a thin film dielectric being form of strontium titanate to modify the multiplayer circuit board of Sunahara or Lauffer in order to provide a minimize the oxidation of layers of a thin film capacitor.

Allowable Subject Matter

8. Claim 4 is allowed.

The following is an examiner's statement of reasons for allowance:

Neither the references cited nor the cited references teach or suggest an electronic circuit equipment using a multiplayer circuit board on which a semiconductor chip is mounted in combination comprising: an area of a second electrode is narrower than an area of a thin film dielectric, and the second electrode is located on an inner side of the thin film dielectric.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

6. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

TD
July 24, 2003.



DAVID L. TALBOTT
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800